

10/536975

PCT/IR 03 / 05404

12.01.04



INVESTOR IN PEOPLE



The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

REC'D 12 JAN 2004

WIPO

PCT

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

BEST AVAILABLE COPY

Signed

Dated 19 November 2003

**PRIORITY  
DOCUMENT**

SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH RULE 17.1(a) OR (b)



1/77

# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

1. Your reference

6.70.1041 UK

2. Patent application number

(The Patent Office will fill in this part)

0227935.4

02DEC02 E767560-10 D00073

P01/7700 0.00-0227935.4

3. Full name, address and postcode of the or of each applicant (underline all surnames)

INTERBREW S.A.  
VARSTRAAT 94  
B-3000 LEUVEN  
BELGIUM

7906530002

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

A BELGIAN CORPORATION

4. Title of the invention

DISPENSING DEVICE FOR ALCOHOL  
BEVERAGE CONTAINED IN A BAG

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

G.F. REDFERN & CO.  
LYNN HOUSE  
IVY ARCH ROAD  
WORTHING  
WEST SUSSEX. BN14 8BX

Patents ADP number (if you know it)

1412005

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

6.70.1041

- 1 -

## DISPENSING DEVICE FOR ALCOHOL BEVERAGE CONTAINED IN A BAG

### Field of the Invention

The present invention relates to an alcohol beverage dispensing apparatus for dispensing the beverage from a bag.

### Background of the Invention

In some applications it is known to store alcohol beverages in plastic bags. In home beer dispensing apparatus, beer is filled into and dispensed from a plastic bag that is housed in a metallic keg. A dip tube extends into the bag for filling and dispensing the beer.

During dispensing the bag deflates and there is a possibility that the bag may be drawn into contact with the dip tube. This is especially a problem when the bag is nearly empty of its contents. As a consequence of the bag contacting the dip tube, beverage may be prevented from passing into the dip tube or may result in the bag rupturing or tearing against the dip tube. Once a bag tears, there is internal leakage and the bag can no longer be recycled.

Summary of the Invention

It is an object of the present invention to provide a dispensing member for dispensing an alcohol beverage from a bag that is not subject to disturbances in flow rate of beverage being dispensed when the bag comes into contact with the dispensing member.

It is an object of the present invention to provide a dispensing member for dispensing an alcohol beverage from a bag that reduces risk of the bag rupturing should the bag come into contact with the dispensing member.

The present invention relates to a dispensing device for a bag containing an alcohol beverage. The device has a hollow elongated member adapted to extend into the bag. The hollow elongate member has an end portion having a plurality of laterally spaced apart notches providing openings through which the beverage passes. The lateral spaced notches permit fluid flow in the end portion of the device in the event the bag contacts the end portion.

It is envisaged that the end portion has interval side wall portions between adjacent notches which have rounded tip portions to reduce the chances of the end portion puncturing the bag. Alternatively, the end portion may have a closed end to reduce the risk of bag puncture. It is envisaged that the end portion may have a spherical shape or a bell bottom shape. Alternatively, a base plate may be provided to isolate the bag from the end portion.

Preferably the dispensing member comprises an elongated hollow tube. The tube may comprise a metal or hard plastic material, so long as it maintains its elongated shape.

Preferably, the alcohol beverage dispensing device is utilized in a home beer dispensing apparatus.

In accordance with an aspect of the present invention there is provided a dispensing device for a bag containing an alcohol beverage. The dispensing device comprises a hollow elongated member adapted to extend into the bag. The hollow elongated member has an end portion having a plurality of laterally spaced apart notches providing openings in the end portion through which the beverage passes into the hollow elongated member.

#### Brief Description of The Drawings

For a better understanding of the nature and objects of the present invention reference may be had to the accompanying diagrammatic drawings in which:

Figure 1 is a front elevation view of a home beer dispensing apparatus in accordance with the present invention;

Figure 2 is a side elevation view of the home beer dispensing apparatus;

Figure 3 is a side sectional view of the keg shown inside the beer dispensing apparatus of Figure 2 having a dip tube extending into the bag of the keg;

Figure 4 is an enlarged view of a preferred embodiment of the tip portion of the dip tube;

Figure 5 is an enlarged view of an alternative embodiment of the tip portion of the dip tube; and,

Figure 6 is an enlarged view of a further alternative embodiment of the tip portion of the dip tube.

### Detailed Description Of The Invention

Referring to Figures 1 and 2 there is shown a home beer dispensing apparatus, appliance or unit 10. The dispensing apparatus 10 is primarily intended for use in domestic kitchens but may also be used in utility rooms, garages, domestic bars, caravans etc. While the preferred embodiment relates to dispensing beer, alternatively carbonated solutions or other alcohol beverages may be dispensed by apparatus 10.

The home beer dispensing apparatus 10 has a front wall 12 and a dispensing tap 14 protruding forward of the front wall 12. A drip tray 16 also protrudes forward of the front wall 12 and is adapted to support an open glass container 18 below the dispensing tap 14. The home beer dispensing apparatus 10 further has a base 21 adapted to rest on a counter top in a kitchen. The front wall 12 is formed as an extension of two pivoting side walls 20 which may be moved between closed and open positions to allow the keg 22 (see Figure 2 in broken lines) to be inserted into the housing of the home beer dispensing apparatus 10. The housing of the home beer dispensing apparatus 10 further includes a top wall 24 and a rear wall 26. The rear wall 26 has a grill 30 that permits for air circulation within the home beer dispensing apparatus 10. An electrical cord 32 extends through the rear wall 26 of the apparatus 10 to provide a connection into a main electrical supply to supply electrical power to the electrical components housed within the dispensing apparatus 10. Alternatively, a 12 Volt DC supply input may be used.

The dispensing apparatus 10 has a cooling system 23 located behind and below keg 22 that is adapted to cool the keg 22 of beer when placed in dispensing apparatus 10. The dispensing apparatus 10 also

dispenses the beer by providing a pressurized air supply (not shown).

Referring to Figure 3, the cooling of the keg 22 within the beer dispensing apparatus 10 is accomplished by a cooling apparatus 23 comprising cooling plate 70 having a cooling surface 72 that in the preferred embodiment is in mechanical and heat transfer contacting relation with the bottom portion of the keg 22 for extracting heat from the beer 52.

The cooling apparatus further includes a Peltier thermoelectric device 80 mounted in mechanical and thermal heat transfer contacting relation with the cooling plate 70. The Peltier thermoelectric device 80 is connected through a suitable leads and transformer (not shown) to the power supply line or cord 32 (see Figure 2) so that a voltage is applied across the Peltier thermoelectric device 80.

Keg 22 has a general cylindrical shape with side walls 40 and a top wall or top portion 42 and a bottom wall or bottom portion 44. Both top wall 42 and bottom wall 44 are curved upwardly from the central portion of the keg 22 and are provided with a raised annular collar 46. The collars 46 provide additional support for the keg 22.

Mounted within the keg walls 40, 42 and 44 is a plastic bag 50 for containing alcohol beverage which in the preferred embodiment is beer 52.

As shown in Figure 3, the keg is filled with beer 52 within the bag 50 and as a result the bag 50 lines the inside walls of the keg 22. As the beer 52 is dispensed from the keg 22, an air pressure is established between the walls of the bag 50 and the inside surfaces of walls 40, 42 and 44 of the keg so as to provide pressure to the bag 50 allowing the beer 52 to be dispensed from the keg 22. The air pressure space is shown

at 55.

The top portion 42 and collar 46 located in the top portion 42 of keg 22 has a keg dispensing device or valve 60 extending through the top collar 46. The keg dispensing device 60 is connected to the tap 14 of the beer dispensing apparatus 10 by a tube or tap connection (not shown) extending from the keg dispensing device 60 at its top end 62.

The dispensing device 60 has a dip tube 66 that extends into the keg 22 within bag 50 so as to provide a remote open end 64 adjacent the bottom portion 44 of the keg for drawing beer 52 from the bottom portion 44 of the keg 22. Beer 52 is drawn through open end 64, up hollow tube 66 out through end 62 to the tap 14 (Figure 1). For filling, the beer is inserted through valve end 62 down the tube 66 and out end 64 into bag 50. The dual direction flow of beer 52 into and out through end portion 64 is illustrated by arrows 67 in Figure 3.

Referring to Figures 3 and 4, the end portion 64 of the tube 66 has a plurality of laterally spaced apart notches 90 which are positioned between interval side wall portions 92. The notches 90 in effect provide crenellated openings in the end portion 64 through which the beer 52 passes into and out from the hollow tube 66. As best shown in Figure 4, the interval side wall portions 92 have rounded tip portions 98.

It should be understood that the tube 66 is an elongated cylindrical member wherein the side wall has the crenellated openings 90 so as to form an inverse battlement shape or structure. The purpose of the openings or notches 90 is to permit for the beverage to pass into the tube 66 when pressure in space 55 pushes bag 50 into contacting relation with end portion 64 of the tube 66. This contacting relation is shown by broken line 100 in Figure 3. It should be noted in Figure 3 that the end



portion 64 is spaced a sufficient distance away from the bottom portion 44 of keg 22 and that in practice, the bag 50 will line the bottom portion 44 of keg 22. Hence, the representation of line 100 of the bag coming into contact with the base or end portion 64 of the tube 66 is more likely to occur in conditions where there is considerably less beer 52 contained in the bag 50 than the amount of beer that is illustrated in Figure 3.

The advantage of the rounded tip portions 98 on the interval side wall portions 92 is to reduce the risk of the end portion 64 piercing the bag 50 during the dispensing operation. Further, the tips 98 reduce the risk of the end portion 64 piercing the bag 50 during the insertion of the tip or the tube 66 into the bag 50 prior to the bag 50 being filled with beer 52.

Referring to Figure 4, there is shown an alternate construction of an interface base plate 110 comprising a thin piece of metal. The base plate 110 is shown to have a circumference that is larger than that of the tube 66, however, in practice the circumference of base plate 110 may substantially correspond to the diameter of tube 66. The purpose of base plate 110 is to isolate the bag 50 from the end portion 64 of the tube 66. In one aspect of the present invention, it is envisaged that the support plate 110 forms a part of the end portion 64 thereby closing off the otherwise opened end of the end portion 64. Alternatively, the base plate 110 may form a portion of, or be laminated to, the bag 50. The purpose of the base plate 110 is to prevent piercing of the bag 50 by the end portion 64 of the tube 66.

Referring to Figure 5, there is shown an alternative embodiment for the end portion 64 of the dip tube 66. In this embodiment the end portion 64 has an outwardly flared end tip portion 120. This outwardly flared tip

portion is a bell bottomed shape. This particular shape, while having the advantages associated with the tip portion 64 shown in Figure 4, also has the advantage that when beer is dispensed into the bag, beer has a tendency to flow laterally out the ends of the notches 94 due to the bell shape 120 having a closed end 122. This results in the displacement of beer flowing into the bag to be a more even distribution. This more even distribution reduces carbon dioxide pockets forming in the bag during a bag beer fill operation.

Referring to Figure 6 there is shown an alternative embodiment wherein the end portion 64 has a spherical shape 130. The spherical shape 130 prevents bag perforation during the insertion of the tube 66 into the bag 50 and during the dispensing of beer from the bag 50.

WHAT IS CLAIMED IS:

1. A dispensing device for a bag containing an alcohol beverage, the dispensing device comprising:

a hollow elongated member adapted to extend into the bag, the hollow elongated member has an end portion having a plurality of laterally spaced apart notches providing openings in the end portion through which the beverage passes into the hollow elongated member.

2. The device of claim 1 wherein the end portion of the hollow elongated member is open.

3. The device of claim 1 wherein the notches form crenellated openings.

4. The device of claim 1 wherein the hollow elongated member comprises a tube.

5. The device of claim 1 wherein the end portion has interval side wall portions between adjacent notches which have rounded tip portions.

6. The device of claim 1 further including an interface base plate extending between the end portion and the bag to isolate the bag from the end portion.

7. The device of claim 6 wherein the end portion has interval side walls portion between adjacent notches and the base plate is attached to the side wall portions to close the end portion of the hollow elongated member.

8. The device of claim 6 wherein the base plate forms part of the bag.

9. The device of claim 7 wherein the end portion is has a bell bottom shaped wall.

10. The device of claim 1 wherein the end portion has a spherical shape.

11. An alcohol beverage dispensing apparatus comprising:  
a keg having top and bottom portions;  
a bag contained within the keg for containing an alcohol beverage;  
and,

a dispensing device comprising a hollow elongated member extending into the bag towards the bottom portion of the keg for inserting the beverage into the bag during a bag fill operation and for dispensing the beverage from the bag during a dispense operation, and the hollow elongated member having an end portion having a plurality of laterally spaced apart notches providing openings in the end portion through which the beverage passes into and out from the hollow elongated member.

12. The device of claim 11 wherein the hollow elongated member comprises a tube.

13. The device of claim 12 wherein the end portion of the hollow elongated member is open.

14. The device of claim 12 wherein the notches form crenellated openings.

15. The device of claim 12 wherein the end portion has interval side wall portions between adjacent notches which have rounded tip portions.

16. The device of claim 12 further including an interface base plate extending between the end portion and the bag to isolate the bag from the end portion.

17. The device of claim 16 wherein the end portion has interval side wall portions between adjacent notches and the base plate is attached

to the side wall portions to close the end portion of the hollow elongated member.

18. The device of claim 16 wherein the base plate forms part of the bag.

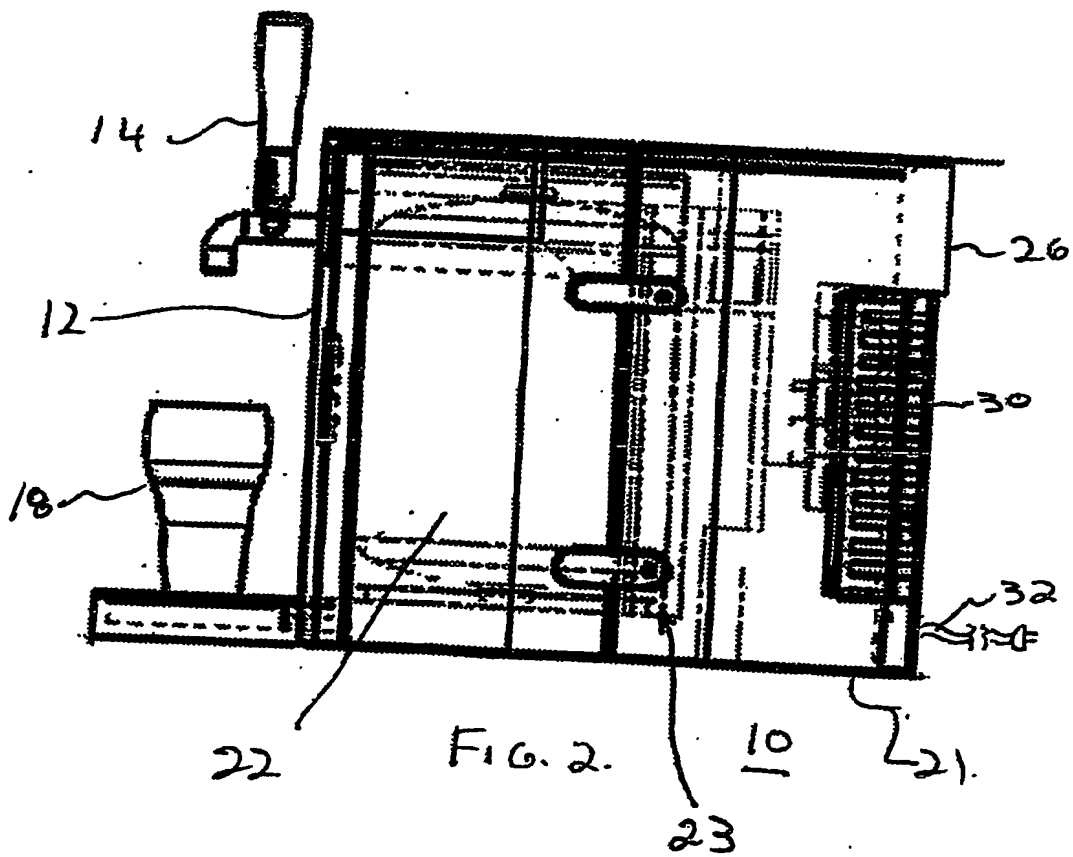
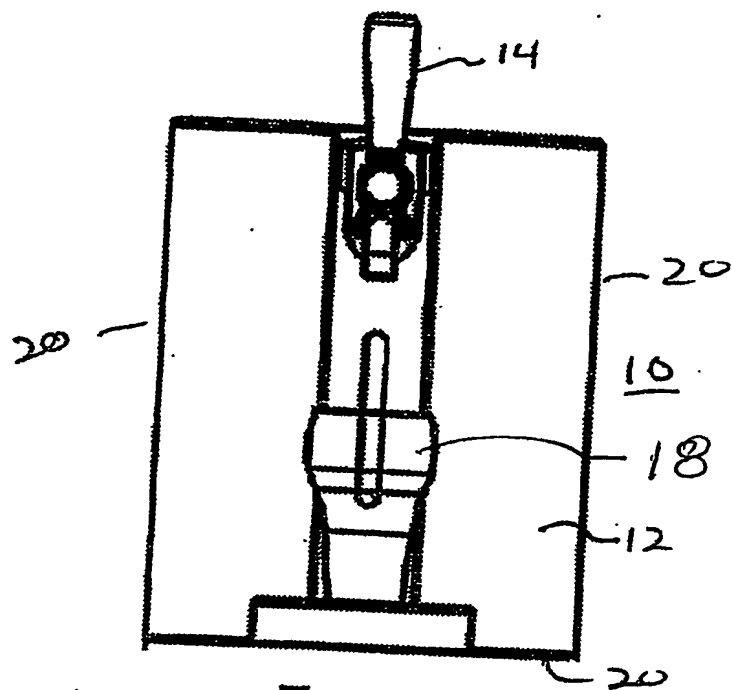
19. The device of claim 11 wherein the end portion is has a bell bottom shaped wall.

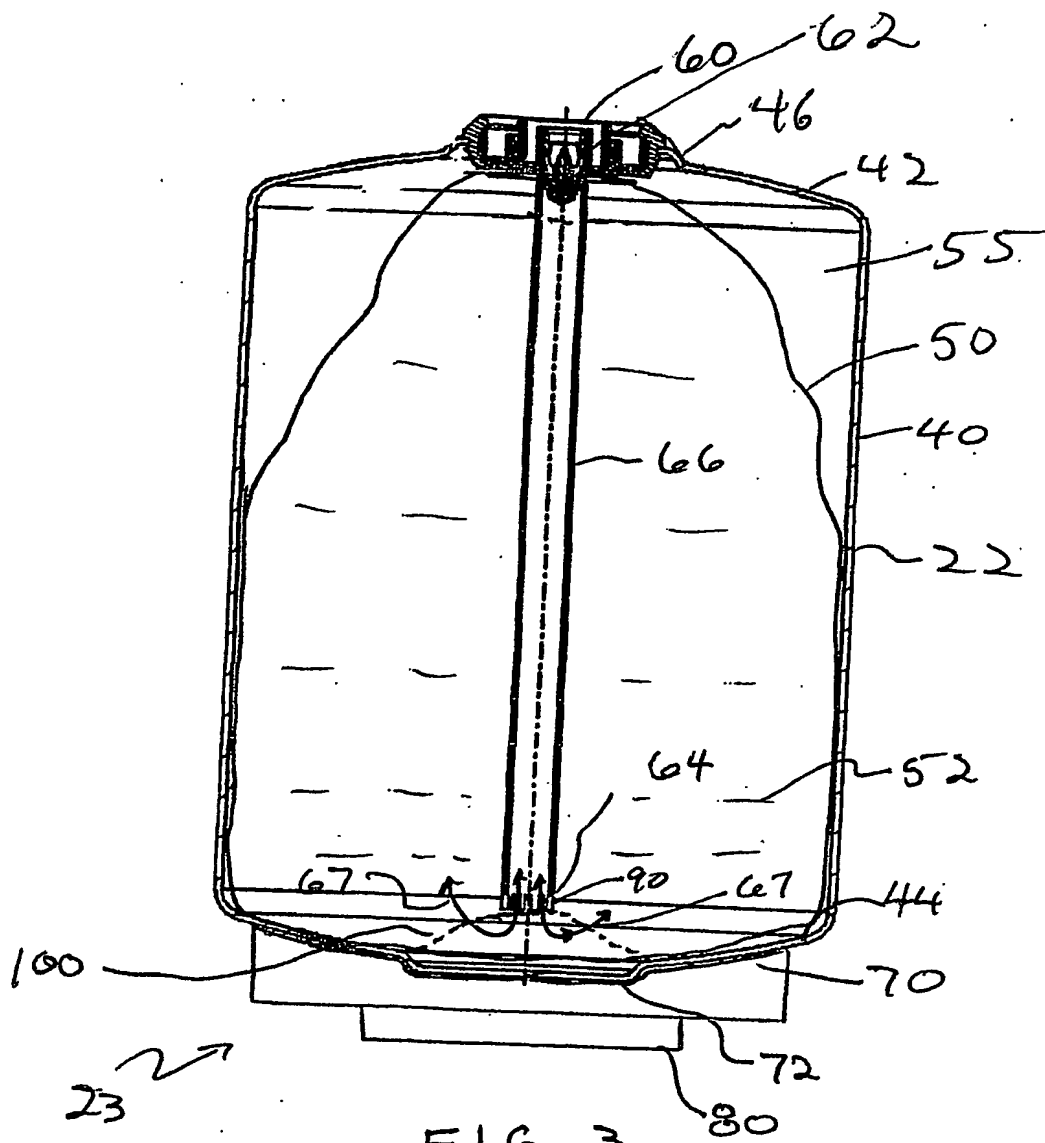
20. The device of claim 11 wherein the end portion has a spherical shape.

DISPENSING DEVICE FOR ALCOHOL BEVERAGE CONTAINED  
IN A BAG

## ABSTRACT

An alcohol beverage dispensing apparatus has a keg having top and bottom portions and a bag contained within the keg for containing an alcohol beverage. The apparatus has a dispensing device that has a hollow elongated tube extending into the bag towards the bottom portion of the keg for inserting the beverage into the bag during a bag fill operation and for dispensing the beverage from the bag during a dispense operation. The hollow tube has an end portion having a plurality of laterally spaced apart notches positioned between interval side wall portions to provide crenellated openings in the end portion through which the beverage passes into and out from the hollow elongated member. The interval side wall portions have rounded tip portions to reduce the risk of the end portion puncturing the bag during beverage filling and dispensing cycles.







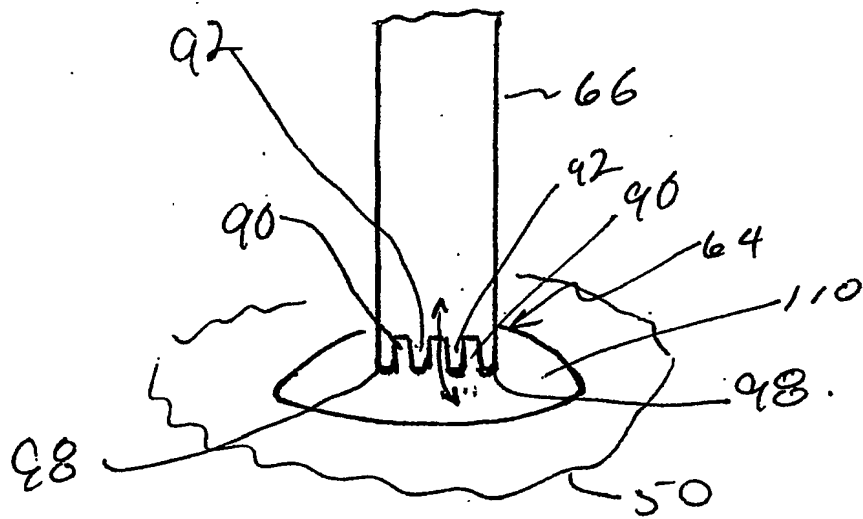


FIG. 4

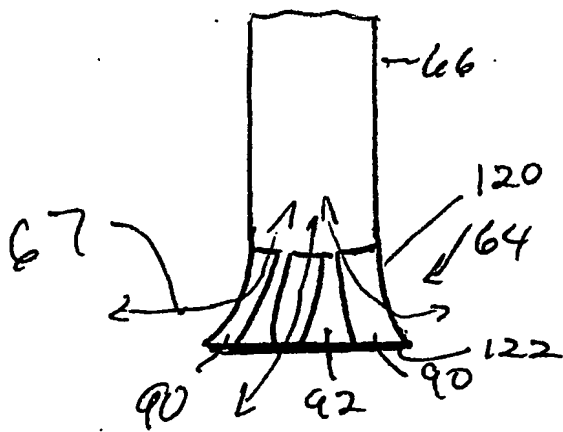


FIG. 5

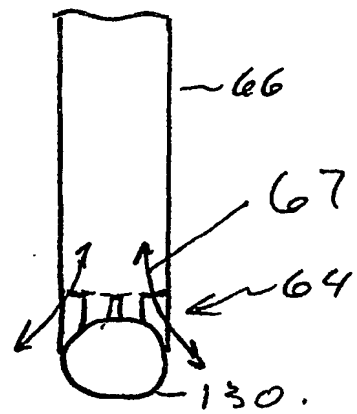


FIG. 6

This Page is inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☒ BLURED OR ILLEGIBLE TEXT OR DRAWING
- ☒ SKEWED/SLANTED IMAGES
- ☐ COLORED OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REPERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images  
problems checked, please do not report the  
problems to the IFW Image Problem Mailbox**